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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/126,683	07/30/1998	BRUCE ANTHONY BEADLE	AT9-98-303	9195

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EXAMINER

ANYA, CHARLES E

ART UNIT	PAPER NUMBER
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2126

DATE MAILED: 11/19/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/126,683

Applicant(s)

BEADLE ET AL.

Examiner

Charles E Anya

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10 – 13 and 16 – 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,192,476 B1 to Gong in view of U.S. Pat. No. 6,009,517 to Bak et al.

As to claim 10, Gong teaches a Privilege (“...permissions...” Col. 11 Ln. 38 – 67), Method (Check Permission Method 382 Method 340-3 Method 340-2 Method 340-1 Col. 11 Ln. 1 - 35), Data Processing System (Computer System 100 Col. 5 Ln. 26 – 67), a Current Thread (Thread 306 Col. 10 Ln. 66 – 67, Col. 11 Ln. 1 - 35), a Run-Time Environment (Code Executor 210 Col. 6, Ln. 50 – 67), a Stack (Call Stack 308 Col. 10 Ln. 66 – 67, Col. 11 Ln. 1 - 35), a Stack Frame (Frame 310-F Frame 310-4 Frame 310-3 Frame 310-2 Frame 310-1 Col. 11 Ln. 1 – 35) a Thread Identifier (Thread 306 Col. 15 Ln. 21 – 67, Col. 16 Ln. 1 – 67: NOTE: Thread 306 includes a thread identifier), locating a linked List and searching the linked list (Stack 308 is queue/linked list of frames and the steps (Steps 430, 440, 450, 490) of inspecting/traversing the stack) and a Stack Frame Extension (Col. 11 Ln. 16 – 18).

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Gong is silent with reference to a stack frame pointer.

Bak teaches a Stack Frame Pointer ("...frame pointer..." Col. 7 Ln. 1 – 36). It would have been obvious to apply teaching of Bak to the system of Gong. One would have been motivated to make such a modification in order to traverse the frames on the execution stack (Col. 7 Ln. 24 – 36).

As to claim 12, claim 10 meets claim 12 except for privilege information and validation information.

Gong teaches Privilege Information (Privilege Flag 312 Col. 14 Ln. 57 – 67) and Validation Information (Col. 11 Ln. 19 - 25).

As to claim 11, Although a plurality of linked list is not explicitly taught, Gong does teach that a parent thread could create child thread that inherits the parent's call stack (Col. 17 Ln. 8 – 21). By inheriting the parent's call stack and have it's own call stack a plurality of linked list is achieved.

As to claim 13, see the rejection of claim 12.

As to claim 16, Gong teaches retrieving privilege information and validation information (Step 440 Col. 16 Ln. 31 – 43).

As to claim 17, claims 10 and 11 meets claim 17 except for storing privilege information, querying the stack frame shadow apparatus and deleting privilege information in order to revert a privilege.

Gong as modified teaches storing privilege information to enable a privilege (Privilege Flag 312 Col. 14 Ln. 57 – 67, Col. 15 Ln. 1 – 4), querying (Step 430, 440, 450 and 490 Col. 15 Ln. 43 – 67, Col. 1 – 67: NOTE: Although this querying does not include a

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shadow stack apparatus the steps of figure 4 could include the parent and child thread of claim 11) and deleting privilege information in order to revert a privilege (Col. 15 Ln. 4 – 14).

As to claim 18, see the rejection of claim 10.

As to claim 19, see the rejection of claim 10.

As to claim 20, see the rejection of claim 11.

As to claim 21, see the rejection of claim 12.

As to claim 22, see the rejection of claim 13.

As to claim 23, see the rejection of claim 14.

As to claim 24, see the rejection of claim 15.

As to claim 25, see the rejection of claim 16.

As to claim 26, see the rejection of claim 10.

3. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,192,476 B1 to Gong in view of U.S. Pat. No. 6,009,517 to Bak et al. as applied to claim 10 above, and further in view of Introduction to the Capabilities Classes (Hereinafter referred to as ICC pages 1 – 15).

As to claim 14, Gong as applied to claim 10 does not teach adding an entry if no matching entry is found.

ICC teaches adding an entry if no matching entry is found (page 3, line 11 – 21). It would have been obvious to apply the teaching of ICC to the system of Gong as modified. One would have been motivated to make such modification to enable privilege for a method.

As to claim 15, Gong as applied to claim 10 is silent with respect removing a matching entry.

ICC teaches removing a matching entry (page 3, line 37 – 47). It would have been obvious to apply the teaching of ICC to the system of Gong as modified. One would have been motivated to make such modification to restrict enabled privilege (page 3, line 37 – 47).

Response to Arguments

Applicant's arguments filed 7/23/03 have been fully considered but they are not persuasive.

Applicant argues that the Gong discloses traversal of the stack frame and such does not disclose searching a linked list for entry having a stack frame pointer that matches the stack frame pointer of the method for which a privilege is provided. Firstly, Gong prior art reference as Applicant would agree discloses a stack that is made up of stack frames of methods and the methods contain privileges. As the Applicant rightfully noted the Gong prior art reference traverses the stack each time a request is received to determine if the method in the frame of stack provides a privilege. The act of traversing is the same the as act of searching of the claimed limitation because both the Gong reference and claimed limitation searches for a method that contains a privilege. Although, the Gong reference is silent with respect to matching a stack frame pointers in order to locate the method that contain a privilege this limitation is inherent in traversing/searching a stack. This is because each frame of a stack inherently includes

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a stack frame pointer that links or pointer to the next frame. And in traversing/searching the stack the stack frame pointer of each frame is examined in order determined the next frame and subsequently the frame/method that contains a privilege.

This notwithstanding the office action introduced the Bak prior art reference to show the traversing/searching of stack using stack frame pointer. As Applicant rightfully agreed (page 11 lines 8 – 12) stack frame pointer may used to traverse/search a stack for a particular frame. In using the stack frame pointer the frame/method that contains a privilege could be located.

Applicant also argues that the Gong and Bak prior art references do not teach or suggest that the linked list entries are stack frame extensions.

A stack is made up finite number of frame extensions and these frames contain method entries and are linked together by a stack frame pointer and thus a linked list of method entries/stack frame extension.

Applicant also argues the Gong prior art reference's thread 306 is not a thread identifier.

A thread inherently includes an identifier, that uniquely identify a thread and the thread 306 is no different. According the Gong prior art reference every call stack has an associated thread (Col. 10 Ln. 61 – 67). In associating a thread with its call stack some kind of an identifier is needed to tie/link the thread to the call stack.

Since each frame in stack is a stack frame extension and has a stack frame pointer as explained above and as Applicant agrees that Gong teaches the use of privilege and validation information the argument about Gong not disclosing privilege

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and validation information in a stack frame extension along with stack frame pointer is not valid.

Examiner also maintains earlier arguments.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E Anya whose telephone number is (703) 305-3411. The examiner can normally be reached on M – F (First Friday Off) from 8:30 am to 5:30 pm.

The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Charles E Anya
Examiner
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A handwritten signature in black ink, appearing to read 'John Follansbee', with a stylized, flowing script.

**JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100**